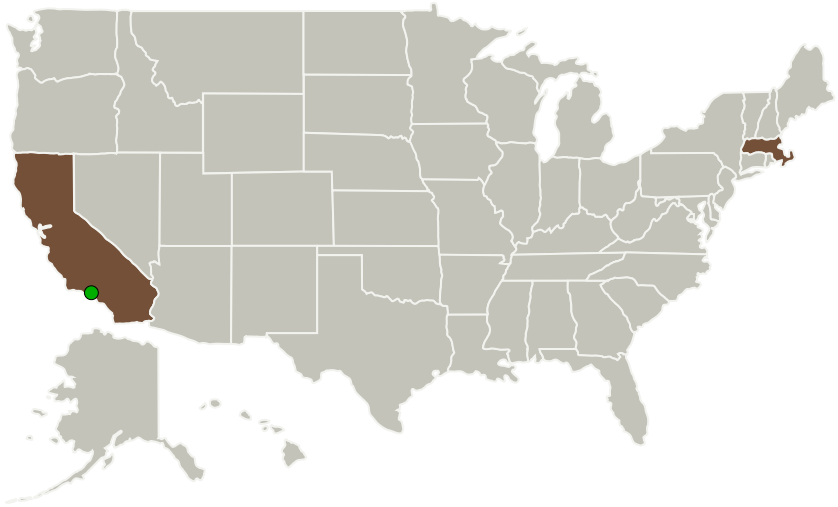
Precision Electrospray Thruster Assembly (PETA), Phase I

Completed Technology Project (2011 - 2011)

Project Introduction

New low cost, low volume, low power, rugged electrospray thrusters will be ideal as actuators for precision thrusting, if provided with precision high voltage power supplies. The small thrusters show minimum thrusts of 1.2 nanoNewton, and thrusts scalable in a wide range to hundreds of microNewtons, with an ISp of 3500 sec. We propose in Phase I to develop, test and characterize with electrospray thrusters a high-precision high-voltage power supply optimized for fine control of the thrusters, and designed to support accurate formation flying of space telescope elements, and precision alignment and stabilization of space platforms. The Phase I HV supply design will be developed in Phase II into a cubesat format Precision Electrospray Thruster Assembly including thrusters, and ready for flight tests. At the end of Phase II PETA units will be provided as protoflight avionics to be flown, tested and qualified.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Espace Inc.	Lead Organization	Industry	Hull, Massachusetts
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

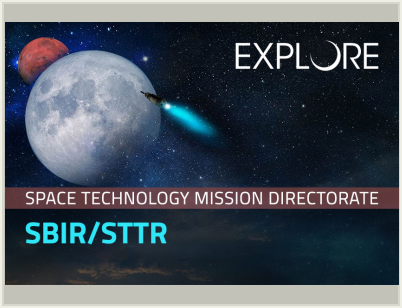


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Table of Contents

Precision Electrospray Thruster Assembly (PETA), Phase I

Completed Technology Project (2011 - 2011)

Primary U.S. Work Locations	
California	Massachusetts

Project Transitions

February 2011: Project Start

September 2011: Closed out

Closeout Summary: Precision Electrospray Thruster Assembly (PETA), Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/140203)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Espace Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

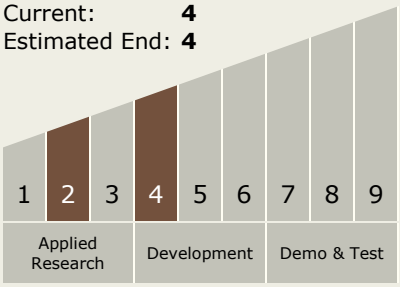
Carlos Torrez

Principal Investigator:

Francois H Martel

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Precision Electrospray Thruster Assembly (PETA), Phase I

Completed Technology Project (2011 - 2011)

Technology Areas

Primary:

- TX01 Propulsion Systems
  - TX01.2 Electric Space Propulsion
    - TX01.2.2 Electrostatic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System